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(54) Title of the invention	TELETEXT RECEIVER	
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(72) Inventor	Yasuhiro Araki	Sharp Corporation
		22-22 Nagaïke-cho, Abeno-ku, Osaka-shi, Osaka
(71) Applicant	Sharp Corporation	22-22 Nagaïke-cho, Abeno-ku, Osaka-shi, Osaka
(74) Agent	Patent Attorney Kazuhide Okada	

SPECIFICATION**1. TITLE OF THE INVENTION**
TELETEXT RECEIVER**2. SCOPE OF PATENT CLAIMS**

(1) A teletext receiver equipped with a television receiver incorporating a decoder for teletext reception and a video tape recorder incorporating a decoder for teletext reception, wherein:

in a prescribed position on a teletext display screen based on a character signal decrypted by said decoder of said television receiver, an output means which outputs a display signal for displaying that the signal has been decrypted by the decoder of the television receiver is established; and

in a prescribed position on a teletext display screen based on a character signal decrypted by said decoder of said video tape recorder, an output means which outputs a display signal for displaying that the signal has been decrypted by the decoder of the video tape recorder is established.

3. DETAILED DESCRIPTION OF THE INVENTION**TECHNICAL FIELD**

The present invention relates to a teletext receiver for receiving teletext broadcasts from countries in Europe. In particular, it relates to a teletext receiver suitable for a TOP (TABLE OF PAGE) system, which is a teletext broadcasting system scheduled to begin in West Germany.

PRIOR ART

In this TOP system, VPT (video recorder program teletext), in which a program table is broadcast in teletext, is used in order to make a reservation to record a television program using a video tape recorder. After receiving this teletext and displaying the program table on the screen of a television receiver, the user can make a reservation to record the program by moving a cursor to the position of the desired program to be recorded while looking at this screen.

When making this recording reservation, character signals decrypted by a decoder for teletext reception (character signal processing circuit) are monitored with a television receiver, but character signals from the video tape recorder are provided to the television receiver in the television mode in the form of RGB signals,

composite video signals, or RF signals, and teletext from the video tape recorder is displayed in this television mode.

On the other hand, because a decoder for teletext reception (character signal processing circuit) is also incorporated into the television receiver, when receiving ordinary teletext for cases other than recording reservation, teletext is received and displayed by setting the television receiver to the text mode without going through the video tape recorder.

However, there is the problem that the screen that displays teletext from the decoder of the video tape recorder when the television receiver is set to the television mode and the screen that displays teletext from the decoder of the television receiver when the television receiver is set to the text mode cannot be differentiated simply by looking at them. In particular, for remote control signals of the television receiver, the text mode typically uses the reverse code of the television mode in order to reduce the number of keys on the remote control transmitter. Therefore, if the television receiver mistakenly assesses whether it is in the television mode or the text mode, it causes errors in the operation of the remote control.

PURPOSE OF THE INVENTION

The present invention was conceived in light of the problems described above, and its purpose is to enable the easy differentiation between a teletext display screen decrypted by the decoder of a video tape recorder and a teletext display screen decrypted by the decoder of a television receiver.

CONSTITUTION OF THE INVENTION

In order to achieve the objective described above, the present invention is equipped with a television receiver incorporating a decoder for teletext reception and a video tape recorder incorporating a decoder for teletext reception, wherein, in a prescribed position on a teletext display screen based on a character signal decrypted by the decoder of the television receiver, an output means which outputs a display signal for displaying that the signal has

been decrypted by the decoder of the television receiver is established, and in a prescribed position on a teletext display screen based on a character signal decrypted by the decoder of the video tape recorder, an output means which outputs a display signal for displaying that the signal has been decrypted by the decoder of the video tape recorder is established.

With the configuration described above, a decrypted signal is outputted from the decoder of the television receiver along with a display signal indicating that it was decrypted by the decoder of the television receiver, while a decrypted character signal is outputted from the decoder of the video tape recorder along with a display signal indicating that it was decrypted by the decoder of the video tape recorder, so it is displayed which decoder the signal was decrypted by in a prescribed position on the teletext display screen.

EMBODIMENTS

Embodiments of the present invention will be described in detail hereafter using the drawings. Fig. 1 is a schematic block diagram of an embodiment of the present invention. The teletext receiver 1 of this embodiment is equipped with a television receiver 3 incorporating a decoder 4 for teletext reception in Europe (character signal processing circuit) and a video tape recorder 5 also incorporating a decoder 4 for teletext reception in Europe.

With this teletext receiver 1, the following steps are taken to ensure that it can be easily assessed whether the teletext display screen displayed on television receiver 3 was decrypted by decoder 2 built in to the television receiver or by decoder 4 built in to the video tape recorder.

Simply stated, in a prescribed position on the teletext display screen of television receiver 3, the characters "TV" are displayed when the screen is based on a character signal decrypted by decoder 2 of television receiver 3, while the characters "VTR (or VCR)" are displayed when the screen is based on a character signal decrypted by decoder 4 of video tape recorder 5.

In order to execute such a display, an output

means described below which outputs a display signal for displaying these characters "TV" is established on decoder 2 of television receiver 3, and an output means which outputs a display signal for displaying the characters "VTR (or VCR)" is established on decoder 4 of video tape recorder 5.

Fig. 2 is a configuration diagram of the teletext display screen for explaining the prescribed positions in which the characters "TV" or "VTR (or VCR)" are displayed.

On one screen of teletext in Europe, the main text comprises 23 rows from ROW 1 to ROW 23, each row containing 40 characters, for a total of $40 \times 23 = 920$ characters. This main text has no free space to display characters such as "TV" or "VTR (or VCR)."

In addition to this main text, there is ROW 24 at the lowermost level as a display area, but this row is used to display the broadcast station name sent from the broadcast station or the type of teletext of the TOP system, so it is not possible to secure reliable free space in this row.

There is also ROW 0 at the uppermost level as a display area in addition to the main text, but this row is the page header, and 32 of the 40 characters of this row are used to display information such as time data sent from the broadcast station, so the first 8 characters of this row can be used as free space. However, the first 4 of these 8 characters are used to display "P100" when on page 100, for example, so the reliable free space consists of the 4 characters shaded by diagonal lines.

In this embodiment, the characters "TV" or "VTR (or VCR)" are displayed in this 4-character space.

Fig. 3 is a block diagram of the relevant parts of decoder 2 of television receiver 3.

Decoder 2 in this embodiment is equipped with a character data extraction IC 6 which extracts character data from composite video signals provided from a video signal processing circuit not shown in the figure, a character signal generation IC 7 which generates RCB character signals based on character data from this character data extraction IC 6, a memory IC 8 in

which multiple screens' worth of character data is stored, and control IC 9 which controls character signal generation IC 7.

Character signal generation IC 7 is a CCT (computer controlled teletext) IC with a built-in character generator and image memory. This IC extracts the desired character data among the character data obtained from character data extraction IC 6 and controls the character generator to write a character signal to the image memory. It then reads out and outputs an RGB character signal from this image memory, and teletext display is implemented based on this character signal.

Data corresponding to the operation of a remote control is provided to control IC 9 from a tuning microcomputer not shown in the figure, and it controls character signal generation IC 7 based on this data.

The configuration and operations for teletext display by this decoder 2 are basically the same as with conventional decoders for teletext reception in Europe.

In this embodiment, in order to display the characters "TV" in the free space of the teletext screen based on a character signal decrypted by decoder 2 of television receiver 3 to indicate that the signal was decrypted by the decoder of the television receiver, character data corresponding to "TV" is outputted to character signal generation IC 7 from control IC 9 used as an output means. The character generator is thereby controlled and a character signal corresponding to "TV" is outputted with timing corresponding to the 4-character free space of the teletext screen described above, and as a result, the characters "TV" are displayed in the 4-character free space of the teletext display screen based on the character signal from decoder 2.

In Fig. 3, a description of decoder 2 of television receiver 3 was given, but the configuration of decoder 4 of video tape recorder 5 is basically the same as in Fig. 3, the only difference being that the character data from control IC 9 is replaced by "VTR (or VCR)."

Therefore, in the free space of the teletext display screen of television receiver 3, the characters "TV" are displayed in the case of teletext decrypted by decoder 2 of television receiver 3 and the characters "VTR (or VCR)" are displayed in the case of teletext decrypted by decoder 4 of video tape recorder 5, so the user can differentiate by simply looking at the teletext display screen whether it was decrypted by television receiver 3 or by video tape recorder 5; in other words, whether television receiver 3 is in the television mode or the text mode. As a result, operation mistakes of the remote control due to the remote control signal of television receiver 3, for which there is a reverse code relationship between the television mode and the text mode, can be effectively prevented.

EFFECT OF THE INVENTION

As described above, with the present invention, an output means which outputs a display signal indicating that a decrypted character signal was decrypted by the decoder of the television receiver is established on the

decoder of the television receiver, while an output means which outputs a display signal indicating that a decrypted character signal was decrypted by the decoder of the video tape recorder is established on the decoder of the video tape recorder. It is displayed in a prescribed position on the teletext display screen which decoder the signal was decrypted by, so the user can easily differentiate by simply looking at the screen whether the television receiver is in the television mode or the text mode.

4. BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic block diagram of an embodiment of the present invention. Fig. 2 is a diagram showing the configuration of the teletext display screen. Fig. 3 is a block diagram of the relevant parts of the decoder of the television receiver in Fig. 1.

2, 4...decoders, 3...television receiver, 5...video tape recorder.

Applicant Sharp Corporation

[see source for figure]

Fig. 1

(Schematic block diagram of an embodiment of the present invention)

Separator

- 1: teletext receiver
- 2: decoder
- 3: television receiver
- 4: decoder
- 5: video tape recorder

[see source for figures]

Fig. 2
(Configuration diagram of the teletext display screen)

8 characters

32 characters

main text

Fig. 3
(Block diagram of the relevant parts of the decoder)

composite video signal

character data

RGB character signal

- 6: character data extraction IC
- 7: character signal generation IC
- 8: memory IC
- 9: control IC

る。

このようにテレビジョン受像機8の文字放送表示画面の空きスペースには、テレビジョン受像機3のデコーダ2で復号された文字放送であるときには、「TV」の文字が、また、ビデオテープレコーダ5のデコーダ4で復号された文字放送であるときには、「VTR(またはVCR)」の文字が表示されるので、ユーザは、文字放送表示画面を見ただけで、テレビジョン受像機3で復号したものか、あるいは、ビデオテープレコーダ5で復号したものか、すなわち、テレビジョン受像機3がテレビモードであるのか、あるいは、テキストモードであるかの判別ができ、これによって、テレビモードとテキストモードとで真コードの周知にあるテレビジョン受像機3のリモートコントロール信号によるリモートコントロールの誤操作を有効に防止できることになる。

<発明の効果>

以上のように本発明によれば、テレビジョン受像機のデコーダには、復号された文字番号が、テ

レビジョン受像機のデコーダによるものであることを示す表示信号を出力する出力手段が設けられるとともに、ビデオテープレコーダのデコーダには、復号された文字番号がビデオテープレコーダのデコーダによるものであることを示す表示信号を出力する出力手段が設けられ、文字放送表示画面の所定の位置には、いずれのデコーダによって復号されたものであるかが表示されるので、ユーザは、画面を見ただけでテレビジョン受像機がテレビモードであるのか、あるいは、テキストモードであるかの判別を容易に行うことが可能となる。

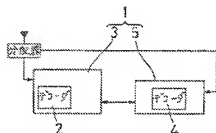
4. 図面の簡単な説明

第1図は本発明の一実施例の概略構成図、第2図は文字放送の表示画面の構成を示す図、第3図は第1図のテレビジョン受像機のデコーダの要部のブロック図である。

2…デコーダ、3…テレビジョン受像機、5…ビデオテープレコーダ。

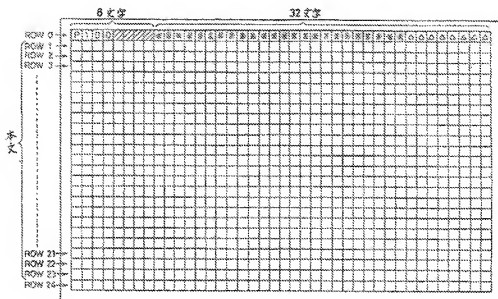
出願人 シャープ株式会社

第 1 図
(本発明の一実施例の概略構成図)



- 1: 文字放送受信装置
- 3: テレビジョン受像機
- 5: ビデオテープレコーダ

第 2 図
(文字放送の表示画面の構成図)



第 3 図
(デコーダの内部ブロック図)

